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EARTH-PHYSICS SATELLITE OBSERVATION CAMPAIGN 1971-1972

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Smithsonian Institution
Astrophysical Observatory
Cambridge, Massachusetts 02138

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1. INTRODUCTION

Smithsonian Astrophysical Observatory (SAO) announces to the members of the ISAGEX Scientific Committee an observing campaign for Fiscal Year 1972 in support of the following earth-physics topics: determination of polar motion, earth tides, seasonal motions of the earth, time variations of the geopotential, and refinement of station coordinates and gravity-field representations. This program is called the Earth-Physics Satellite Observation Campaign (EPSOC). The tracking campaign would be continuous for at least 14 months in order to cover one period of the Chandler wobble. The last ISAGEX period is taken as the beginning; the termination of the program will be arranged to phase into an appropriate successor. The second area of emphasis will be simultaneous observations between laser tracking systems and collocated optical (camera) stations in order to improve considerably the determination of interstation vectors. The continuous tracking will allow new stations to join the program when convenient and will provide precise orbit determination for analysis of their data.

The general operational scheme of ISAGEX has proved to be sound, and SAO proposes a similar but less elaborate version of it for the EPSOC program. The subcenter concept would be retained both for the enlistment of observing stations and for actual operations. SAO would manage the observing program and be responsible for liaison with all the subcenters.

2. OPERATIONS

SAO will act as the main center and be responsible for selecting and coordinating observing periods, scheduling simultaneous observations, determining prediction orbits from tracking data, and cataloging observations.

In addition, SAO will be a subcenter operating its own network and servicing its cooperating observatories and agencies.

When it is appropriate, SAO will establish tracking periods for dynamic geodesy to optimize the scientific value of the resultant data yield. However, unlike ISAGEX, EPSOC will not consist of concentrated observing of selected satellites for brief intervals, but rather of continuous observing of several satellites. Simultaneous observations between stations will be scheduled for geometrical purposes, with emphasis on observations involving laser systems.

SAO will routinely transmit orbital elements to the subcenters for use in computing ephemerides as well as for scheduling simultaneous observations. Quick-look data will not be required from participants. However, expeditious return of observations will allow better predictions and timely isolation of errors.

An updated catalog of station observations will be maintained to facilitate subsequent analysis and to aid in planning the observing schedule.

SAO will collect reduced data from all participants and prepare a preliminary catalog of them. The Observatory will evaluate the data both for its own analysis and as an aid to other investigators.

3. PARTICIPATION

Participation of all the ISAGEX subcenter networks is invited:

Centre National d'Etudes Spatiales (CNES)
Goddard Space Flight Center, NASA (GSFC)
Ondřejov Observatory East European Network
ASTRO Soviet Network of the U.S.S.R.
SAO and its associated observatories and agencies
Individual observatories.

4. SATELLITES

The retroreflector satellites that will form the basis of the EPSOC program are the following:

Satellite	Inclination
1964 64A (BE-B)	80°
1965 32A (BE-C)	41°
1965 89A (Geos 1)	59°
1967 11A (D1-C)	40°
1967 14A (D1-D)	40°
1968 2A (Geos 2)	106°
1970 109A (Peole)	15°

5. CORRESPONDENCE

Correspondence concerning aspects of the program should be directed to

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